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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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David John Powell

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EXAMINER

ALEMU, EPHREM

ART UNIT

PAPER NUMBER

2821

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/596,821	<b>Applicant(s)</b> POWELL, DAVID JOHN	
	<b>Examiner</b> Ephrem Alemu	<b>Art Unit</b> 2821	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 50-79 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 50-79 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/27/2006</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Specification***

1. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### ***Claim Objections***

2. Claims 69-72 are objected to because of the following informalities: in claims 69-72, line 1, respectively, insert --herein the power controller is-- before “arranged” and/or correct it appropriately to clearly indicate the arrangement for the claimed feature. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 50-60, 62, 64-74, 76, 78 and 79 are rejected under 35 U.S.C. 102(e) as being anticipated by Henry (US 6,979,959).

Re claim 64, Henry discloses a power controller for controlling the power delivered to a discharge light (112) by an alternating (AC) power signal via a ballast circuit which resonates at a predetermined value of the frequency of the alternating power signal, including: a power control means (114) arranged to control the AC power signal to maintain the value of the

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frequency of the AC power signal to be always less than the predetermined value after the discharge light has struck to incrementally change (i.e., gradually increasing/decreasing) the frequency of the AC power signal to maximise or stabilise the power delivered to the discharge light, wherein the frequency increments are controlled so as to not exceed a predetermined maximum increment value selected to prevent plasma drop-out in response to an increment in the frequency (Figs. 1-5; col. 2, line 45- Col. 3, line 50; Col. 8, lines 17-60; Col. 9, line 8- Col. 10, line 15).

Re claims 65 and 76, Henry further discloses the power control means (114) is arranged to vary the frequency of the power signal to approach the frequency at which the discharge light enters the third discharge state, in which discharge the light enters an arc discharge condition, and to control the power signal frequency to prevent entry into that state; wherein the power control means (114, 234) is arranged to adjust any one or more of the frequency, amplitude, or phase of the AC power signal when adjusting that signal in response to variations in the delivered power (Figs. 1-5; col. 2, line 45- Col. 3, line 50).

Re claim 66, Henry further discloses the power control means (114, 234) is arranged to control the frequency of the power signal so as to reduce the difference between the frequency of the power signal and the arc frequency, at which discharge the light would enter an arc discharge condition, as much as possible without causing the discharge light to enter an arc discharge state (Figs. 1-5; col. 2, line 45- Col. 3, line 50).

Re claim 67, Henry further discloses the power control means (114) is arranged to vary the frequency of the power signal according to a measure of the power delivered to, or converted in to radiant energy by, the discharge light (Fig. 2).

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Re claim 68, Henry further discloses the power control means (114) is arranged to monitor the amount of power converted by the discharge light, or delivered to it by the ballast circuit (i.e., V-SENSE, I-SENSE), and to adjust the AC power signal in response to variations in the monitored power so as to maximise the power converted by, or delivered to, the discharge light (Figs. 1-5; col. 2, line 45- Col. 3, line 50; Col. 5, line 26- Col. 9, line 56).

Re claims 69 and 70, Henry further discloses the power converter (114, 234) arranged to adjust the frequency of the alternating power signal so as to maximise the proportion of the power in the power signal received by the ballast circuit which is delivered to the discharge light thereby and/or decrease the frequency of the AC power signal in response to decreases in the delivered power thereby to increase the power delivered to the discharge light Figs. 1-5; col. 2, line 45- Col. 3, line 50; Col. 5, line 26- Col. 9, line 56).

Re claims 71 and 72, Henry further discloses the power converter (114, 234) arranged to adjust the AC power signal frequency when responding to variations in the delivered power so as to cause a stabilisation in delivered power and/or increase the frequency of the AC power signal in response to increases in the delivered power, and decrease the frequency of the AC power signal in response to decreases in the delivered power, thereby to stabilise the delivered power (Figs. 1-5; col. 2, line 45- Col. 3, line 50; Col. 5, line 26- Col. 9, line 56).

Re claims 73 and 74, Henry further discloses the power control means (114, 234) includes power monitor means arranged to monitor the value of a selected property (i.e., V-SENSE, I-SENSE) of the AC power signal: as input to the ballast circuit; and/or, as delivered to the discharge light, and to derive from the monitored value of the selected property a measure of the power (i.e., via fault detector (216) or TMING generator (230)) delivered to the discharge

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light (112); wherein the selected property is the value of the electrical current (i.e., I-SENSE) delivered to the discharge light (112) (Fig. 2).

Re claims 78 and 79, Henry further discloses the an inverter means (232) is arranged to receive a DC power input signal and to generate the alternating (AC) power signal therefrom for powering the discharge light via a ballast circuit, wherein the power control means (114, 234) includes an inverter control means (234) arranged to generate inverter control signals for controlling the inverter (232) so as to control the AC power signal generated thereby (Figs. 1-5; col. 2, line 45- Col. 3, line 50; Col. 5, line 26- Col. 9, line 56).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 61, 63, 75 and 77 are rejected under 35 U.S.C. 103(a) as being unpatentable over Henry (US 6,979,959).

Re claim 75, although, Henry does not explicitly mention sampling values of the selected property of the AC power signal once within separate successive sampling periods, wherein each sampling period is no greater in duration than the one half of the duration of a single cycle of said AC power signal or maintaining the frequency of the AC power signal at a value sufficiently low that during at least a part of a cycle of the AC power signal an inductor means of the ballast circuit is caused to saturate, whereby the magnitude of the back-e.m.f. induced thereby is less than a predetermined threshold value during the part of the cycle, such sampling of the selected

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property of the AC signal and/or maintaining the frequency of the AC power signal at a value sufficiently low that during at least a part of a cycle of the AC power signal an inductor means of the ballast circuit is caused to saturate, whereby the magnitude of the back-e.m.f. induced thereby is less than a predetermined threshold value during the part of the cycle deemed to be obvious to a skilled artisan at the time the invention was made for the purpose of controlling the output power delivered to the lamp by changing the frequency of the driving signals either towards the resonant frequency or away from the resonant frequency as taught by Henry (Col. 1, line 50- Col. 3, line 50).

Re claims 61 and 63, given Henry's power controller as discussed above in claims 75 and 77, the method for controlling the power delivered to a discharge light by an alternating (AC) power signal via a ballast circuit which resonates at a predetermined value of the frequency of the alternating power signal as claimed in claims 61 and 63 is inevitable.

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Roman (US 6,259,215); Wilhelm et al. (US 6,211,623); Toda et al. (US 6,153,987); teach similar inventive subject matter.

### ***Correspondence***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ephrem Alemu whose telephone number is (571) 272-1818. The examiner can normally be reached on M-F 9:00 AM to 5:30 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas W Owens can be reached on (571) 272-1662. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

EA  
7-06-09

/Douglas W Owens/  
Supervisory Patent Examiner, Art Unit 2821  
July 6, 2009